How to Read This Supplemental Report

The SARS-CoV-2 variant therapeutic data in this report have been curated in collaboration with the National Institutes of Health (NIH) Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) Tracking Resistance and Coronavirus Evolution (TRACE) Working Group with support from the Foundation for the National Institutes of Health (FNIH). New and updated information will be added on a weekly basis as more studies are shared. Please continue to check back as our curated database grows. Please contact us at NCATSOpenDataPortal@nih.gov with any feedback, comments, or questions to help us improve this resource.

What Data is Included?

The underlying data in these visualizations has been curated, in collaboration with ACTIV TRACE, from a prioritized set of publications (both preprints and peer-reviewed articles). To improve data accuracy, publications are limited to prominent therapeutic agents (both approved and in clinical trial), with an emphasis on studies conducted 1) by the sponsoring pharmaceutical company or 2) with a government partner. **The OpenData Portal does not intend to serve as a comprehensive dashboard for all variant therapeutic data published in the literature.**

How to Interpret the Visualizations

The visualization graphics are meant to provide a quick-glance summary of how **individual SARS-CoV-2 variants** may respond to known therapeutics, compared to reference strains. The displayed fold-change values represent data collected from published *in vitro* viral neutralization assays comparing variants to a reference strain.

Of important note, the data displayed were generated:

- From different assay types and conditions
- By different research laboratories
- Using different reference strains
- With test material from different sources/of potentially different grades, tested at different dose ranges

As a result, the visualizations **should not be used to conduct side-by-side comparisons** of therapeutics. Reported minimum fold reduction values (e.g. >1000-fold) may have greater actual fold change values than those displayed. Furthermore, the data shown are collected from *in vitro* assays, and it is not known how *in vitro* neutralization assay data correlate with clinical outcomes. It is worth noting that the experimental therapeutic concentrations are not necessarily correlated to clinical concentrations; thus therapeutics with large reported fold reductions in activity **may still be active against the variants in clinical settings**, as standard dosing/exposure in patients could exceed the required therapeutic window. Lastly, the data may be from preliminary reports that **have not been peer reviewed** and thus should not be regarded as conclusive, guide clinical practice or health decisions, or be reported in news media as established information.

It is important to note that the fold-reduction values displayed are normalized and may differ from the original activity or fold-change values reported in preprints and publications. All values are normalized to express the fold reduction of neutralization activity for a specific therapeutic against a SARS-CoV-2 variant strain relative to an ancestral or reference SARS-CoV-2 strain within the same assay under identical conditions. The greater the fold-reduction value, the greater the reported reduction of neutralization activity of a specific therapeutic agent against a SARS-CoV-2 variant, compared to the wild-type control. Data with fold-reduction values between 0 and 1 indicate that the therapeutic agent displayed greater neutralization of the variant strain than the wild-type strain.

Interactive versions of these graphics are available on the OpenData Portal Visualization Page
Additional details on the visualized data are available on the **NCATS OpenData Portal.**

New to the OpenData Portal Variant Database this week:

New Pre-prints, Publications & Datasets:

Data provided by AstraZeneca

1. AZD7442 (AZD8895 and AZD1061; mAbs for SARS-CoV-2) Omicron Antiviral Resistance Information [Directly submitted data]
2. Reduced neutralisation of SARS-COV-2 Omicron-B.1.1.529 variant by post-immunisation serum [Pre-print]

Data provided by Molecular Partners AG

3. Ensovibep in vitro assay data against SARS-CoV-2 variants [Directly submitted data]
4. The significant immune escape of pseudotyped SARS-CoV-2 Variant Omicron [Peer reviewed publication]
5. Plasma neutralization properties of the SARS-CoV-2 Omicron variant [Pre-print]
6. Broadly neutralizing antibodies overcome SARS-CoV-2 Omicron antigenic shift [Pre-print]
7. Immunogenicity and reactogenicity after booster dose with AZD1222 via intradermal route among adult who had received CoronaVac [Pre-print]
8. mRNA-based COVID-19 vaccine boosters induce neutralizing immunity against SARS-CoV-2 Omicron variant [Pre-print]
9. Third BNT162b2 vaccination neutralization of SARS-CoV-2 Omicron infection [Pre-print]
10. Striking Antibody Evasion Manifested by the Omicron Variant of SARS-CoV-2 [Pre-print]
11. Improved neutralization of the SARS-CoV-2 Omicron variant after Pfizer-BioNTech BNT162b2 COVID-19 vaccine boosting [Pre-print]
12. SARS-CoV-2 Omicron variant escapes neutralization by vaccinated and convalescent sera and therapeutic monoclonal antibodies [Pre-print]
13. Neutralization of SARS-CoV-2 Omicron variant by sera from BNT162b2 or Coronavac vaccine recipients [Pre-print]
14. Considerable escape of SARS-CoV-2 variant Omicron to antibody neutralization [Pre-print]
15. mRNA booster immunization elicits potent neutralizing serum activity against the SARS-CoV-2 Omicron variant [Pre-print]
16. Broad anti-SARS-CoV-2 antibody immunity induced by heterologous ChAdOx1/mRNA-1273 prime-boost vaccination [Pre-print]
17. The Omicron variant is highly resistant against antibody-mediated neutralization – implications for control of the COVID-19 pandemic [Pre-print]
18. Booster of mRNA-1273 Vaccine Reduces SARS-CoV-2 Omicron Escape from Neutralizing Antibodies [Pre-print]
19. SARS-CoV-2 Omicron: reduction of potent humoral responses and resistance to clinical immunotherapeutics relative to viral variants of concern [Pre-print]

Data provided by Brii Biosciences

20. Neutralization activity of BRII-196 and BRII-198 on Omicron [Directly submitted data]

Explore the latest Variants & Therapeutics data on OpenData Portal:

OpenData Portal | SARS-CoV-2 Variants & Therapeutics

Summary Updated 12.20.2021

177 data sources **5813** activity data points

OpenData Portal, in collaboration with ACTIV and industry partners, has compiled a database of in vitro therapeutic activity against SARS-CoV-2 variants from a prioritized set of publications (both preprints and peer-reviewed articles).

Click to explore variant data on OpenData Portal:

What's new in the last week?		Data for All Variants			
B.1.1.529	AYs	B.1.617.2	B.1.1.7	B.1.351	B.1.427/429
B.1.525	B.1.526	B.1.617	B.1.621	P.1	C.37
Other Variants		Single Point Mutation Data			

In vitro data added to NCATS OpenData Portal in the last week

In vitro Omicron data featured on the NCATS OpenData Portal